



# Micro-G NExT 2017 Sampling Platforms

# Outline

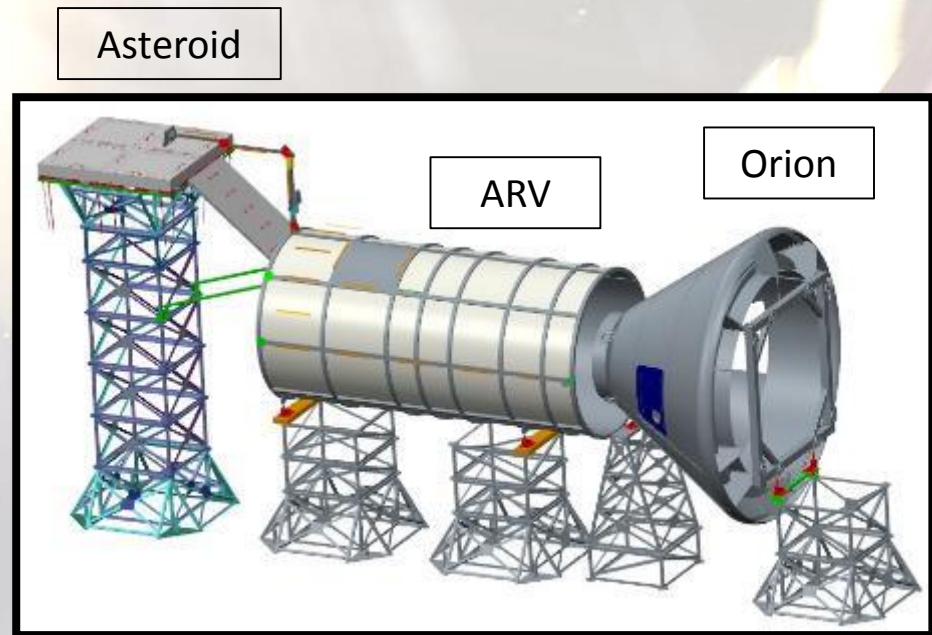
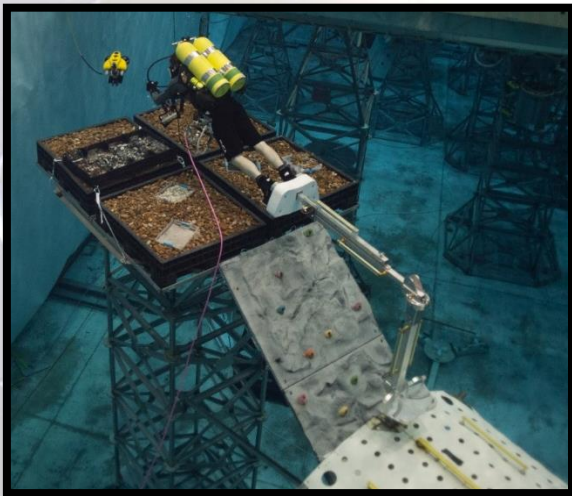


- Test Platform
- Simulant Layout
- Surface Sampling Device
- Subsurface Sampling Device
- Anchoring Device

# EVA Tools and Equipment



- The Micro-G NExT Program will take advantage of an existing NBL mockup for testing tools. This mockup consists of three parts:
  - Orion Multi-Purpose Crew Vehicle
  - Asteroid Retrieval Vehicle (ARV)
  - Asteroid

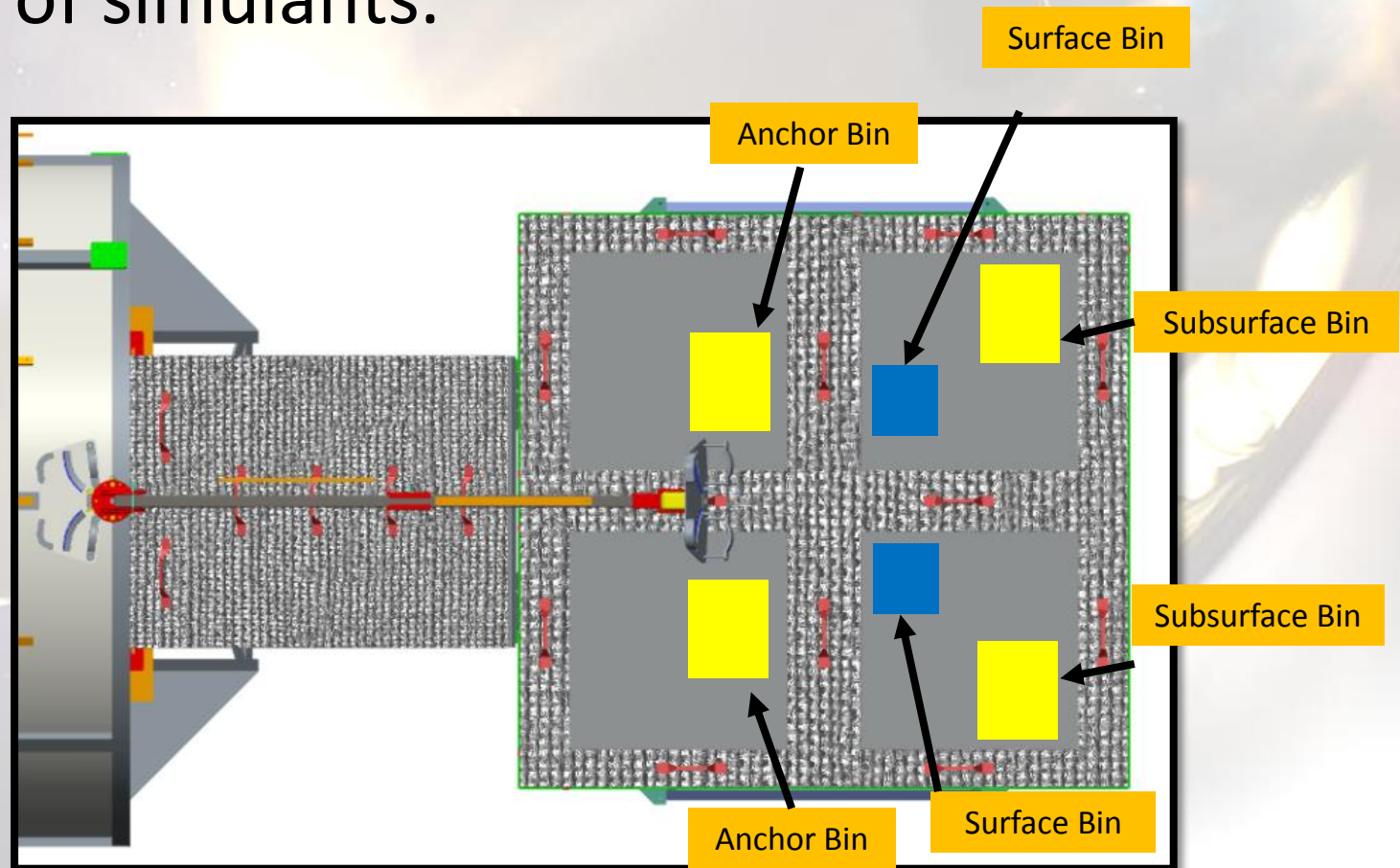




# Simulant Layout on Mockup



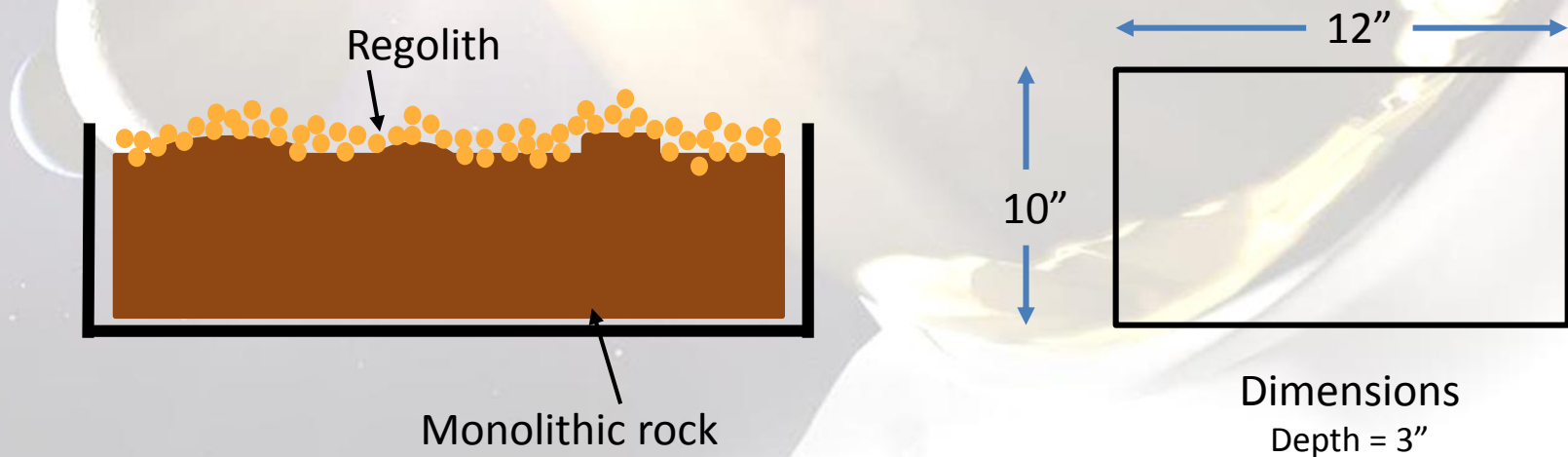
- This top-down view of the Mockup highlights the layout of simulants.



# Surface Sampling Device



- This Sampling Platform will simulate a monolithic body that has fine-grained particles lying over the surface.
- Those fine-grained particles are the surface samples of interest.
- A monolithic rock will be placed onto the Asteroid Mockup. Then regolith simulant will be placed on top of the rock to a thickness of about 0.5".
- The monolithic rock will be irregular in shape.



# Subsurface Sampling Platform



## Sample Site 1

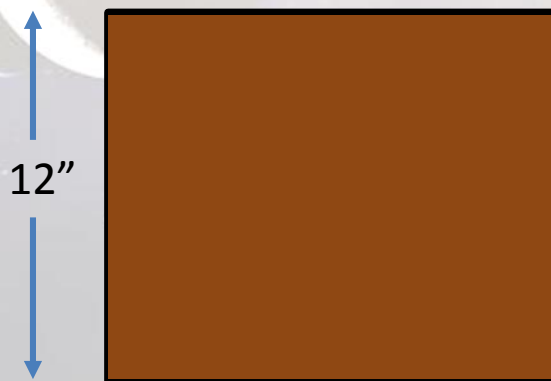


- Sample Site 1 will be made up of a regolith simulant. While it's unlikely we'll find a microgravity bodies made up entirely of loose regolith, this enables teams to obtain samples within the allotted time.
- There will be two different colors of regolith simulant, layered, to evaluate how well the tool maintains stratigraphy.

Dimensions  
Depth = 13.1"

16.8"

## Sample Site 2



- Sample Site 2 will consist of *Sandstone* or a similar type of rock. This "softer" rock that provides team a chance of obtaining their sample within the allotted time.
- The other site will a monolithic rock. This is likely what will be found at microgravity bodies.



# Anchoring Sampling Platform



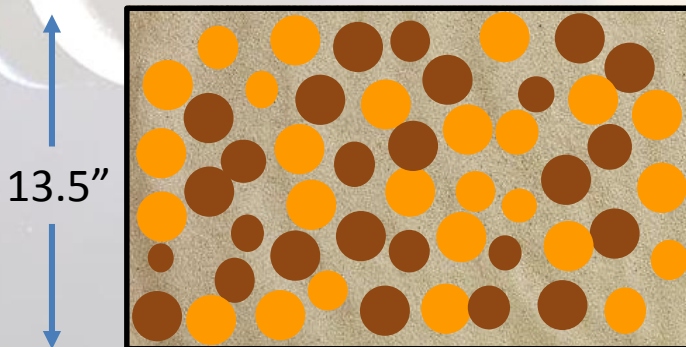
## Sample Site 1



Dimensions  
Depth = 18.75"

← 23.25" →

## Sample Site 2



- Sample Site 1 will consist of regolith simulant.
- One will be a regolith simulant. While it's unlikely we'll find a microgravity body made up entirely of loose regolith, this provides a more simplistic sampling platform to evaluate anchoring concepts.
- Sample Site 2 will consist of a mixture of regolith simulant and small rocks of various grain size.
- This mixture will be like the geologic diversity that would be found on microgravity bodies.